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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,199	07/27/2001	Edward J. Mack SR.	56274 (45676)	8314
21874	7590	02/14/2005	EXAMINER	
EDWARDS & ANGELL, LLP			MULCAHY, PETER D	
P.O. BOX 55874			ART UNIT	
BOSTON, MA 02205			PAPER NUMBER	

1713

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,199

Applicant(s)

MACK ET AL.

Examiner

Peter D. Mulcahy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-17,19 and 21-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-17,19 and 21-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/1/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

These claims depend from claim 1 which recites a three-component composition.

These claims limit the minimum filler content to 55wt%, 60wt% and 70wt%, respectively.

The specification is not enabling for three-component compositions having minimum filler percentages within the claimed range. All examples are directed to compositions having 900g solvent, 100g polymer and 400g carbon fibers. The filler content shown in these examples is 28.57wt%. The disclosure does not specifically discuss three component compositions having the minimum amounts as claimed. It is clear from the specification that the high filler loading is only achieved relative to the polymer component and once the solvent is extracted. It should be noted that these claims are directed to a composition for forming a thermally conductive material. The formed

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thermally conductive material has no solvent present. This is the subject of claim 9 and those dependent therefrom.

4. Claims 19, 25 and 27-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19 and 27-33 are dependent from a canceled claim. As such they are indefinite. These claims are further objected to under 37 CFR 1.75(c) and will not be further treated on the merits.

Claim 25 is directed to a "solvent blending" method. There is no solvent set forth in the claim. As such, the claim is indefinite because the method steps and ingredients are unclear.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 9-15 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by McCollough US 6,048,919.

This patent clearly teaches thermally conductive polymeric materials the claimed amount of fillers, see col. 5, line 55+ and the example. The fiber lengths are shown at line 30 of column 5 and the example. The second filler is shown in the example at col. 6, line 4. In view of this disclosure these claims are anticipated.

The secondary fillers of claims 13 and 14 are shown at col. 5, lines 25+ and in the examples.

9. Claims 9, 15 and 16 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Zhuo et al US 6,162,849.

This patent shows polymeric systems having the claimed amount of filler, see col. 5, lines 50+. In view of this disclosure the claims are anticipated.

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10. Claims 9-12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Barnes et al. US 5,001,184.

The compositions in the examples and table showing the compositions at columns 3 and 4 anticipate each of the claim limitations.

11. Claims 1, 4-6, 17 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al. US 5,001,184.

This patent shows thermoplastic matrix composite compositions having incorporated therein the claimed fibers, see the abstract and the examples. The difference between the claimed invention and that shown in the art is the express incorporation of a solvent. This patent suggests the use of the thermoplastic resin in "the form of a solution" and further references a "solution impregnation process." This is considered sufficient disclosure to render obvious the claimed solvent of claim 1 and solution impregnation process of claims 17 and 25. One of ordinary skill would have been motivated to incorporate solvent and use the process which adds the fibers to a solution of polymer. Such being the case, the claimed invention is prima facie obvious from this disclosure.

12. Claims 1, 4-6 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunimoto et al. US 4,810,419.

This patent shows thermoplastic matrix composite compositions having incorporated therein the claimed fibers, see the abstract and the examples. The difference between the claimed invention and that shown in the art is the express incorporation of a solvent. This patent suggests the use of the claimed solvents at

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column 4, lines 4-10, and in the examples. This is considered sufficient disclosure to render obvious the claimed solvent of claim 1 and solution impregnation process of claim 25. One of ordinary skill would have been motivated to incorporate solvent and use the process which combines the fibers with a polymer in the claimed solvent. Such being the case, the claimed invention is prima facie obvious from this disclosure.

13. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunimoto et al. US 4,810,419 or Barnes et al. US 5,001,184 as applied to claim 1 and 4-6 above, and further in view of Zhuo et al US 6,162,849.

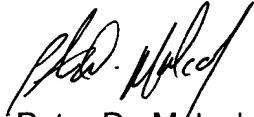
These claims require the secondary filler in combination with the solvent containing composition. The Kunimoto et al. and Barnes et al. fail to expressly incorporate the claimed secondary filler. The Zhuo et al. patent is clear as to the use of combined fillers and the incorporation of the preferred specie of secondary filler. The compositions shown in each of the patents are very similar to each other and one of ordinary skill would find it prima facie obvious to use a secondary filler as shown in Zhuo in the compositions of Kunimoto et al. and Barnes et al. given the advantages appreciated by one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter D. Mulcahy whose telephone number is 571-272-1107. The examiner can normally be reached on Mon.-Fri. 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter D. Mulcahy
Primary Examiner
Art Unit 1713

2/2/05